

Figure 2.
Transect Lines
(North)

Transects for grab samples
Transect lines are hand digitized
to pass near sample points.

Core samples are identified
with rings

Sample

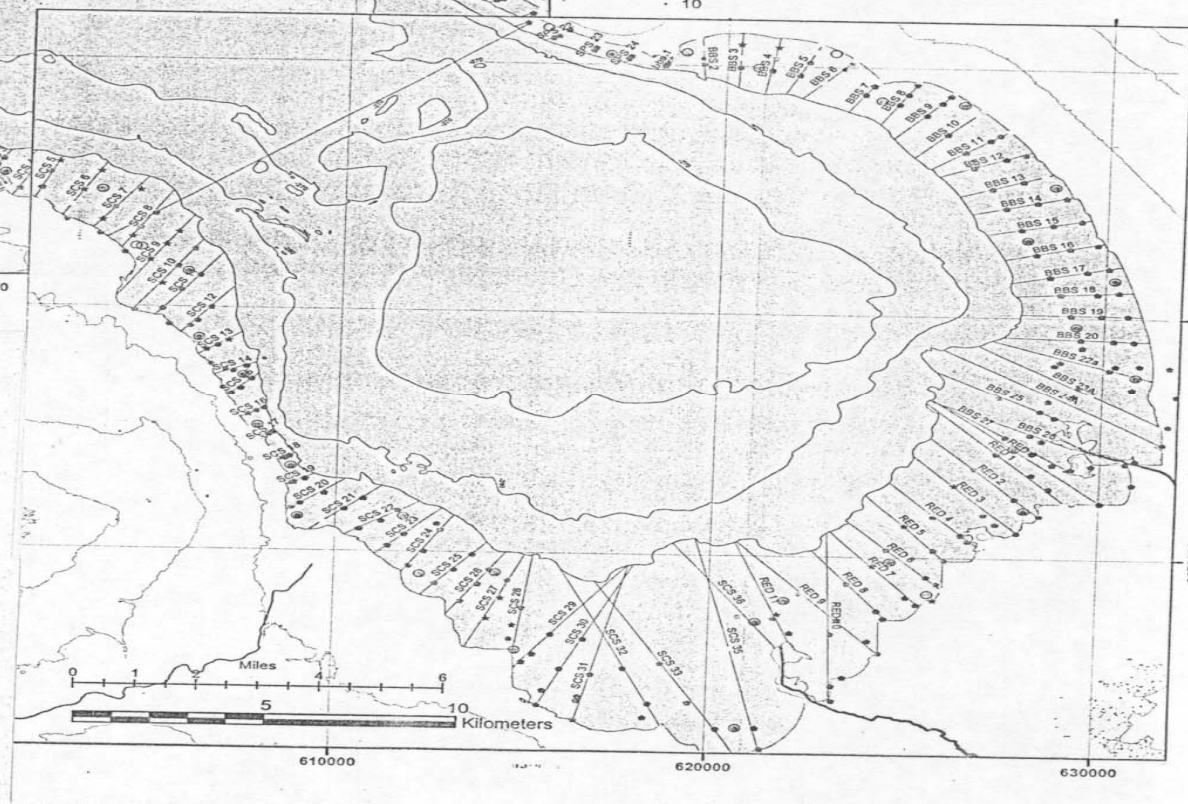
% SAND

- 3 - 24
- 25 - 41
- 42 - 60
- 61 - 77
- 78 - 95

Core_data

% Shell

- 10



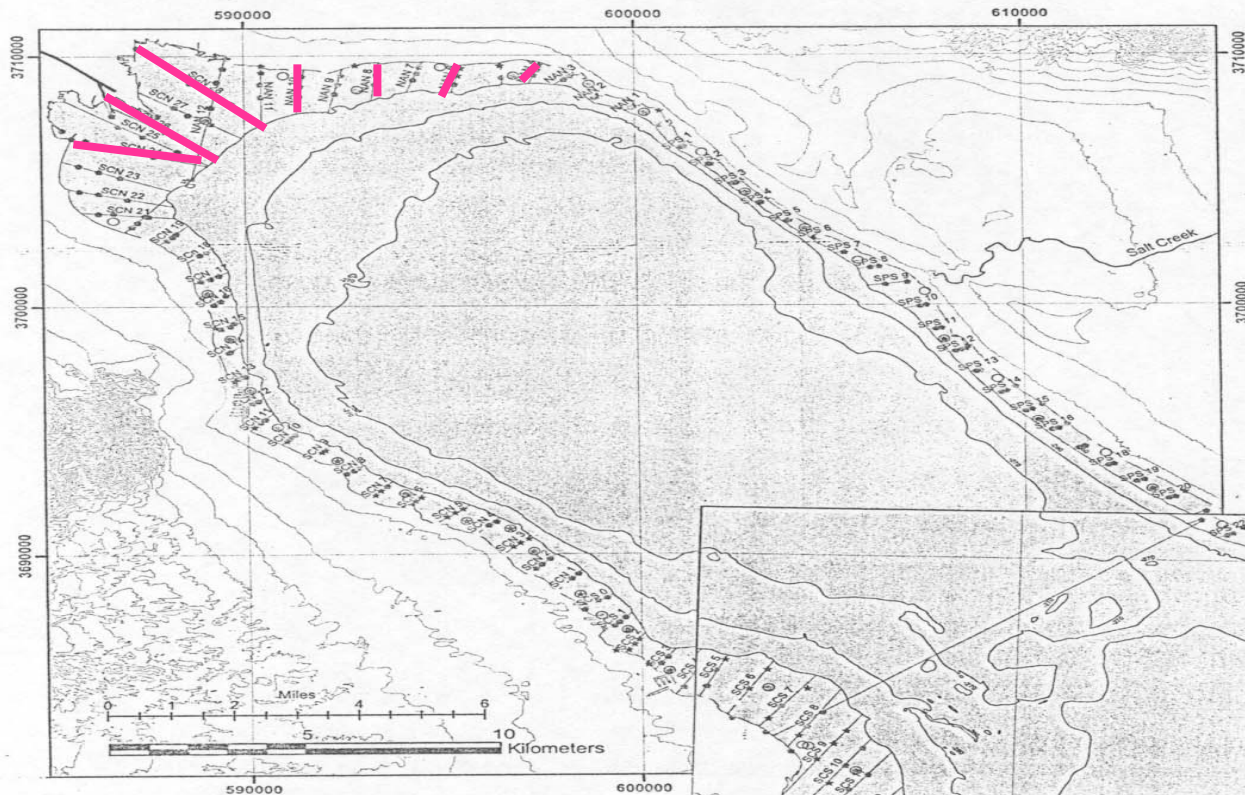


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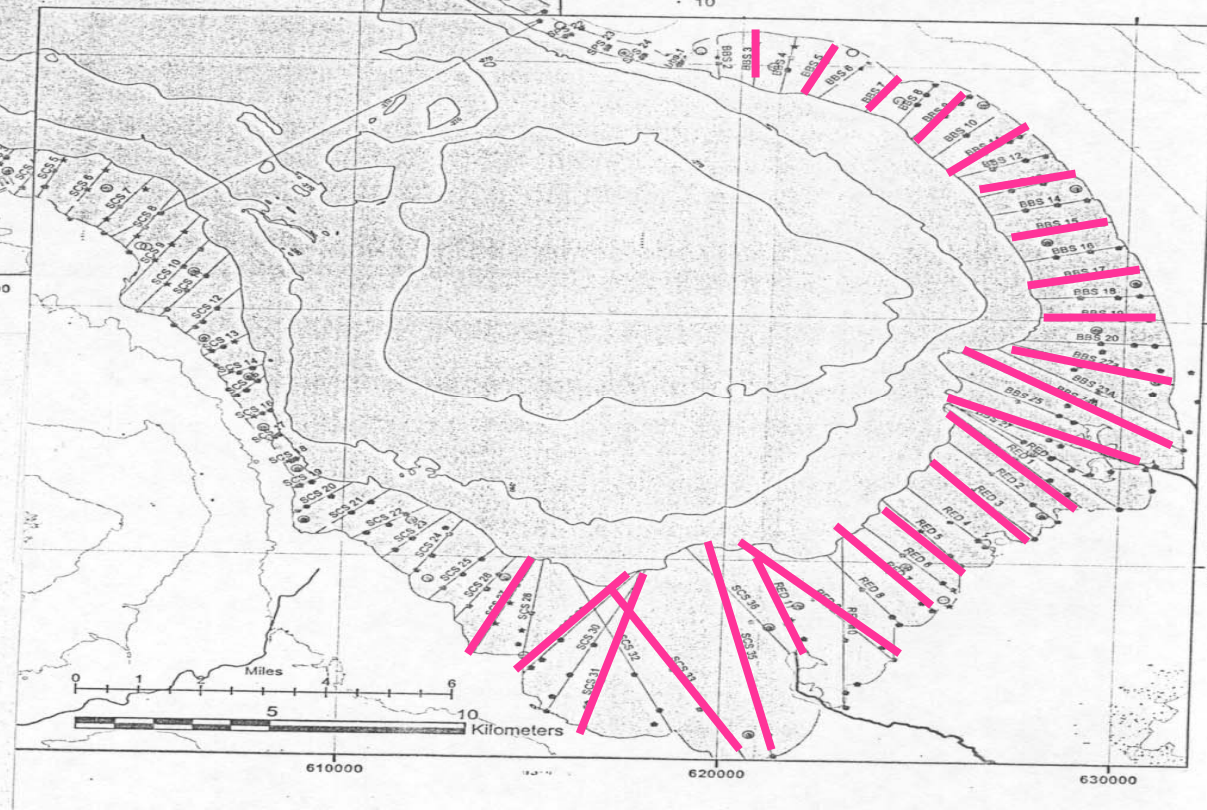
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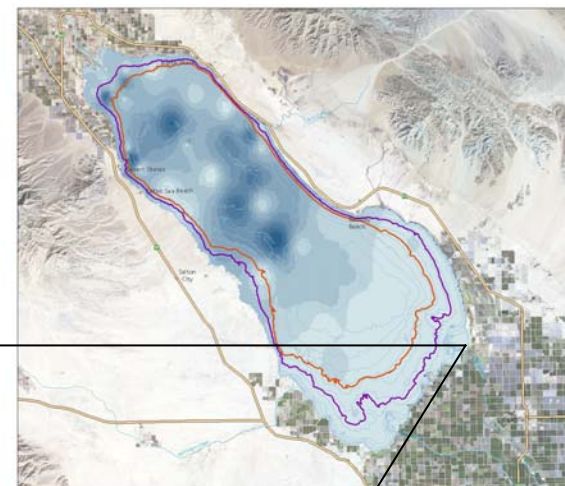
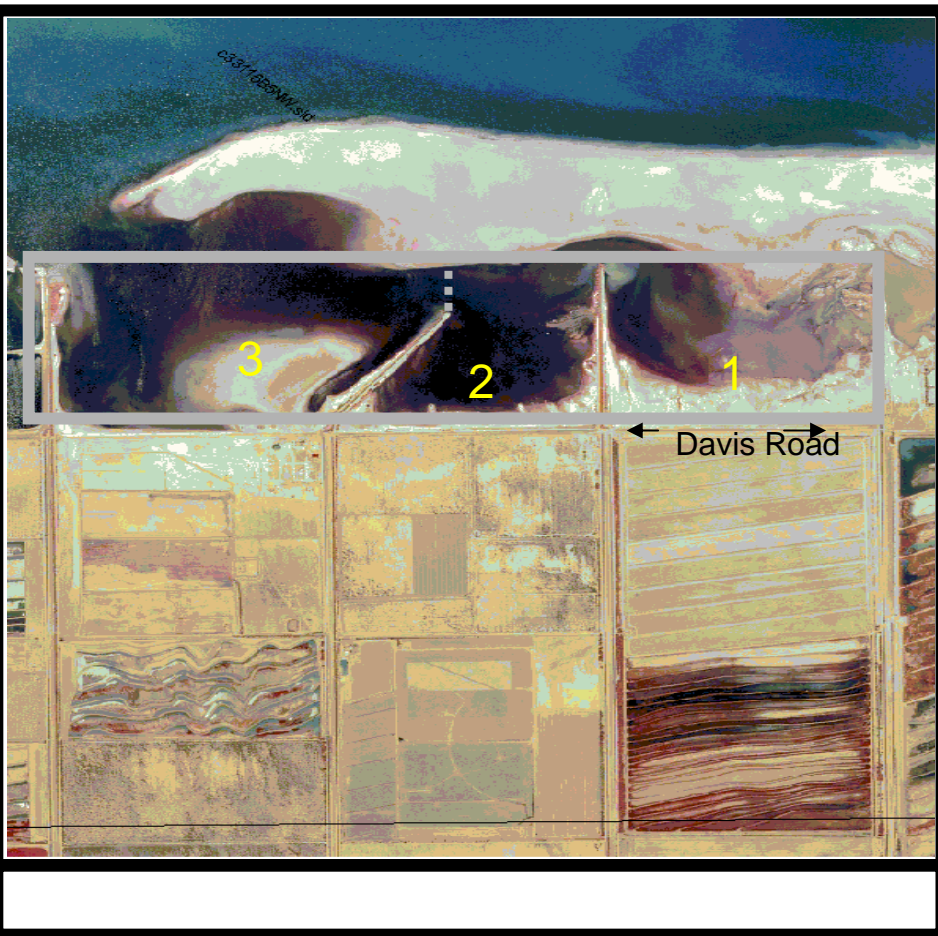


Current Research

- Kent Sea Tech has also done some work on water treatment using rapid growth algae followed by tilapia to remove nutrients on Whitewater River. It was noted that this system cannot work in winter when water temperatures become too low for tilapia to survive. Has potential for selenium removal through algae harvesting
- Other work that has been contracted includes sediment characterization at 5-foot depth intervals down to 25 ft deep from last year's (2003) shoreline (dataset is strongest to 15 ft. depth). There are about 1000 samples from this study that are archived USGS has arranged for selenium analyses for about 100 samples and is seeking aid for an additional 100 samples. Expect results in 3 to 6 month time frame.
- Report by Chris Holdren/USBR in Denver that looked at water, sediment along depth transects around the Sea. This effort is continuing quarterly
- Deep core samples were done for geotechnical evaluations in proposed dike locations. USGS also wants to get some of these archived core samples analyzed for selenium.
- Ongoing project by Chuck Henny/USGS from Corvallis, OR being conducted to look at contaminant levels in bird eggs (great egret, black-crowned night-heron, and black-necked stilts [N = about 12 per species] ; there were not enough avocet eggs). GEs and BCNHs from north end only; stilts from north and south. The samples were sent to Canadian lab about 2-3 weeks ago.

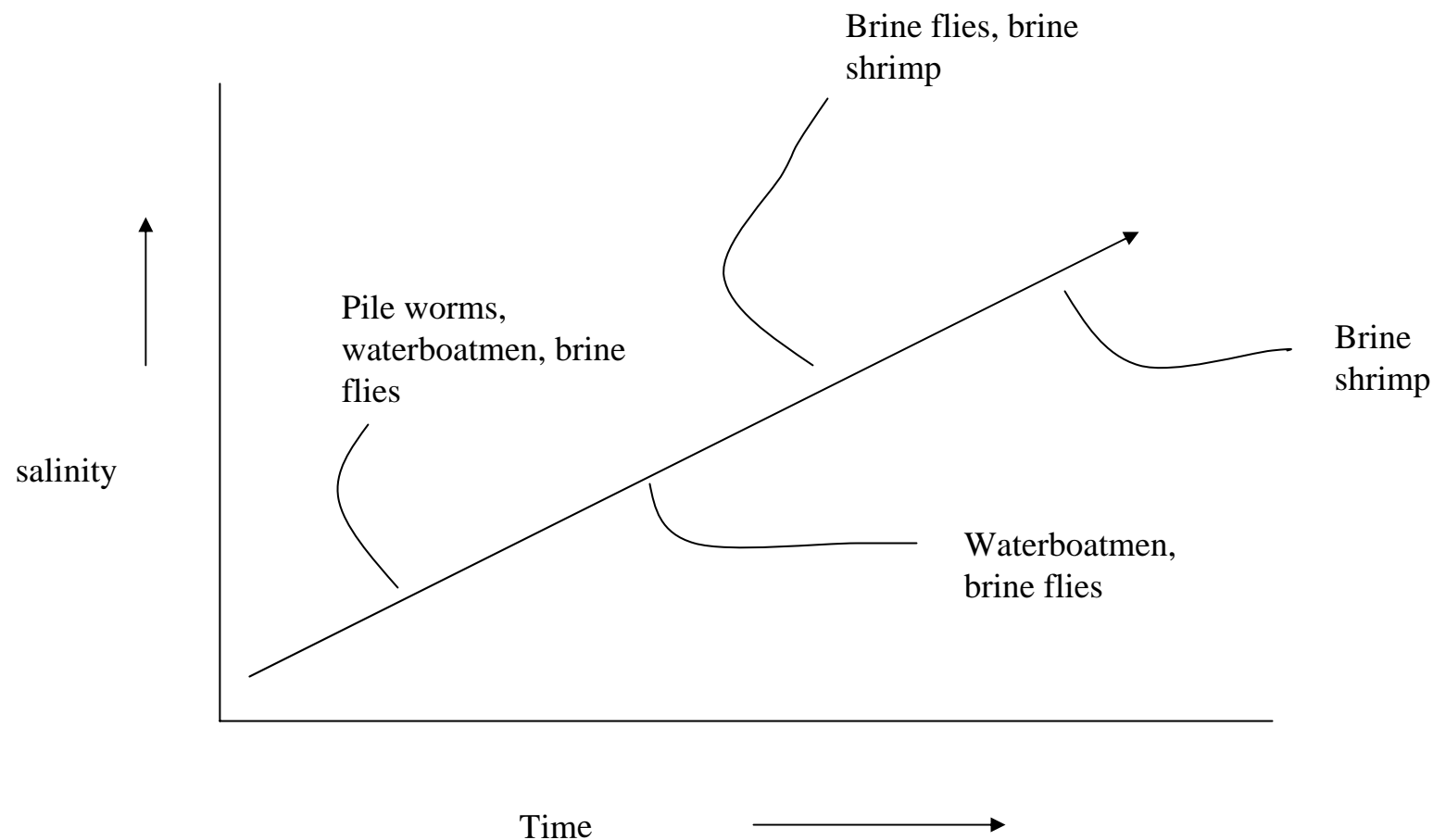
Current research cont'd

- Chris Amrhein/UC Riverside has also looked at chemical flocculent (polyacrilimides/alum) on farm and in drains – in conjunction with Kent Sea Tech project.. Water treatments were primarily intended to address TMDL issues but also have some data on selenium and methods have potential for reducing selenium inputs to the sea along with nutrients
- Also in future, the SSA is looking at shallow water habitat ecological issues. They will complete a project with USBR funding to revitalize existing dikes to create shallow water habitats (most about 1 inch deep) with water conditions similar to effluent from desalination plant (using blended fresh and Salton Sea water). Anticipated date for water floodup is January 2005 and they will give the system about 6 months to stabilize before sampling begins (other than pre-project baseline sampling that will occur)



Considerations

- North sea vs south sea? Trade off of how sea treats selenium moving sequestration from north to south
- Freshwater affects selenium differently than salt water
- Nutrients affect selenium through algal growth and uptake
- Plant life affects selenium uptake and biotic availability
- Sulfates affect selenium
- Water depth affects selenium through redox potential
- Water depth affects selenium through invertebrate production and food availability to birds
- TMDL affects nutrients which affects algal growth which affects selenium uptake
- Any alternative implemented using Colorado River water as the supply will have to accommodate concerns over selenium, including any mitigation considered outside of the Salton Sea Ecosystem.



No action alternative and any alternatives with brine pools, includes increasing salinity, loss of fish and transition to macroinvertebrate, microbial system, concurrent transition to loss of fish eating birds and increase in insectivorous birds. Salton Sea increasing importance to eared grebes, ruddy ducks, shorebirds, and system is probably more efficient at selenium transfer at that point.